

E. H. Jenkins, illustrated. *Herbert and Daniel*.—Evolution in the Past, H. W. Knipe, illustrated. *Hutchinson and Co.*—The Flower Fields of Alpine Switzerland, G. Flemwell, illustrated; The Story of Evolution, J. McCabe, illustrated. *Jarrod and Sons, Ltd.*—Horses and Practical Horse Keeping, F. T. Barton, illustrated; Farther Afield in Birdland, O. G. Pike, illustrated; Wild Animals and the Camera, W. P. Dando, illustrated; My Book of Little Dogs, G. V. Stokes and F. T. Barton, illustrated; Our Dogs and All About Them, F. T. Barton, new edition, illustrated. *John Murray*.—Further Researches into Induced Cell-reproduction and Cancer, H. C. Ross, illustrated; The Genus Rosa, E. Willmott, drawings by A. Parsons, in parts, continued; Science of the Sea: an Elementary Handbook of Practical Oceanography for Travellers, Sailors, and Yachtsmen, prepared by the Challenger Society for the Promotion of the Study of Oceanography, and edited by Dr. G. H. Fowler, illustrated; and a new edition of Recent Advances in the Study of Variation, Heredity, and Evolution, R. H. Lock, illustrated. *Williams and Norgate*.—Introduction to Science, Prof. J. A. Thomson. *Grant Richards, Ltd.*—The Complete Wildfowler Ashore and Afloat, S. Duncan and G. Thorne, illustrated; The Birds of the British Islands, C. Stonham, parts 19 and 20, completing the work. *Seeley, Service and Co., Ltd.*—The Wonders of Bird Life, J. Lea. *Whitcombe and Tombs, Ltd.*—An Australian Bird Book, J. A. Leach, illustrated.

## CHEMISTRY.

*Gebrüder Borntraeger (Berlin)*.—Chemisch-technisches Praktikum, Dr. W. Moldenhauer; Die Chemie der Cellulose, Prof. C. G. Schwalbe; Magnetochemie, Prof. E. Wedekind, illustrated.

## ENGINEERING.

*Cassell and Co., Ltd.*—Electrical Engineering, by H. H. Simmons, in 14 parts, illustrated. *Seeley, Service and Co., Ltd.*—The Wonders of Modern Engineering, A. Williams.

## GEOGRAPHY.

*Cambridge University Press*.—The Climate of the Continent of Africa, A. Knox, illustrated; The Physical Geography of South Africa, A. L. Dutoit; Cambridge County Geographies, illustrated: Buckinghamshire, Dr. A. M. Davies; East London, G. F. Bosworth; West London, G. F. Bosworth; Northamptonshire, Rev. M. W. Brown; North Lancashire, Dr. J. E. Marr, F.R.S.; Monmouthshire, H. A. Evans; The Isle of Man, Rev. J. Quine; Oxfordshire, Rev. P. H. Ditchfield; Dumfriesshire, Rev. Dr. J. K. Hewison; Midlothian, A. McCallum; Perthshire, P. Macnair. *John Murray*.—Rambles in the Pyrenees and the Adjacent Districts—Gascony, Pays de Foix and Rousillon, F. H. Jackson, illustrated. *G. Philip and Son, Ltd.*—Philips' New Historical Atlas for Students, Prof. R. Muir; Philips' Chamber of Commerce Atlas: a Graphic Survey of the World's Trade, with a Commercial Compendium and Gazetteer Index; Philips' Modern School Atlas of Comparative Geography, edited by G. Philip, new edition; The Imperial Stations from Gibraltar to the Far East, prepared for the Visual Instruction Committee of the Colonial Office. *Whitcombe and Tombs, Ltd.*—The Geography of New South Wales, Historical, Physical, Political, and Commercial, Dr. Woolnough, assisted by A. W. Jose, G. Taylor, with introduction by Prof. T. W. David, illustrated.

## GEOLOGY.

*Gebrüder Borntraeger (Berlin)*.—Geologischer Führer durch das Mainzer Tertiärbecken, Dr. E. Mordziol, illustrated; Geologische Charakterbilder, edited by Prof. Stille: Heft 7, Westgrönland, Basalt- und Sedimentgebirge, by A. Heim; Heft 8, Der Odenwald bei Heidelberg und sein Abbruch zur Rheinebene, by W. Spitz and W. Salomon, illustrated.

## MATHEMATICAL AND PHYSICAL SCIENCE.

*Cambridge University Press*.—An Elementary Treatise on Cross-ratio Geometry, with Historical Notes, Rev. J. J. Milne; and new editions of A Primer of Astronomy, Sir R. Ball, F.R.S., illustrated; The Mathematical Theory of Electricity and Magnetism, J. H. Jeans, F.R.S. *Hutchinson and Co.*—Photography, edited by H. P. Maskell. *John Murray*.—A New Geometry, A. E. Layng. G. P. Putnam's Sons.—Star Lore of all Ages, W. T. Olcott, illustrated. *Williams and Norgate*.—Astronomy, A. R. Hinks.

## MEDICAL SCIENCE.

*D. Appleton and Co.*—A Text-book of Bacteriology: a Practical Treatise for Students and Practitioners of Medicine, P. H. Hiss, jun., and H. Zinsser; Treatise on Tuberculosis, edited by A. C. Klebs; Plastic and Cosmetic Surgery, F. S. Kolle; Clinical Symptomatology, with Reference to the Life-threatening Symptoms and their Treatment, A. Pick and A. Hecht; A Text-book of Medicine for Practitioners and Students, Dr. A. V. Strumpe; A Text-book in Psychotherapy, including the History of the Use of Mental Influence, directly and indirectly, in Healing, and in the Principles for the Application of Energies derived from the Mind to the Treatment of Disease, J. J. Walsh. *Gebrüder Borntraeger (Berlin)*.—Pharmakognostischer Atlas, Zweiter Teil der mikroskopischen Analyse der Drogenpulver, Prof. L. Koch, Band i., illustrated. *Herbert and Daniel*.—The Romance of Modern Surgery and its Making: a Tribute to Listerism, Dr. C. W. Saleeby. *J. Nisbet and Co., Ltd.*—Tuberculin in the Diagnosis and Treatment of Tuberculosis, Dr. W. C. Wilkinson; The Intensive Irradiation and Wave Current Treatment of Rheumatism, Sciatica, Lumbago, Neuritis, and Painful Joints, L. E. Creasy.

## TECHNOLOGY.

*Gebrüder Borntraeger (Berlin)*.—Internationale Zeitschrift für Metallographie, edited by Dr. W. Guertler, Band i., illustrated; Handbuch der bautechnischen Gesteinsprüfung, Prof. J. Hirschwald, illustrated. *C. Arthur Pearson, Ltd.*—Wires and Wireless, T. W. Corbin. *Seeley, Service and Co., Ltd.*—Mechanical Inventions of To-day, T. W. Corbin, illustrated; The Romance of Aeronautics, C. C. Turner. *John Hogg*.—A new edition of Silverwork and Jewellery, H. Wilson, with notes by Prof. U. Bisei, illustrated.

## MISCELLANEOUS.

*Gebrüder Borntraeger (Berlin)*.—Gedanken und Vorschläge zur Naturdenkmalpflege in Hohenzollern; Die Gefährdung der Naturdenkmäler und Vorschläge zu ihrer Erhaltung, Prof. H. Conwentz, new edition. *Cambridge University Press*.—Byways in British Archaeology, W. Johnson, illustrated; Assyrian and Babylonian Letters Belonging to the Kouyunjik Collections of the British Museum, edited by R. F. Harper, parts x. and xi. *John Murray*.—Early Norman Castles in the British Isles, E. Armitage, illustrated; The Excavation of Gezer, 1902-5 and 1907-9, Prof. R. A. Stewart MacAlister, 3 vols., illustrated. *Scott Publishing Company, Ltd.*—The Composition of Matter and the Evolution of Mind, D. Taylor. *Williams and Norgate*.—Psychical Research, Prof. W. F. Barrett, F.R.S.; The Dawn of History, Prof. J. L. Myres.

THE SCIENTIFIC MISAPPROPRIATION OF POPULAR TERMS.<sup>1</sup>

ONE of the main functions of the British Association is to prevent the development of a scientific caste in this country. The essential ideas of caste and science are diametrically opposed; nevertheless, the spirit of caste has in times past invaded the spirit of science, with the natural consequence that the eager explorers of knowledge became the academic guardians of tradition; and the same invasion now would deprive science of the popular sympathy and support which are more than ever necessary for its steady development. The members of the corresponding societies have special opportunities for helping that part of the Association's mission, for their personal intercourse with all sections of the community enables them to do much "to obtain a more general attention to the objects of science." Their influence must be exerted mainly through words, and the proper use of words is a matter of vital importance to the welfare of science. The recent appeals

<sup>1</sup> Address to the Conference of Delegates at the Portsmouth meeting of the British Association, by Prof. J. W. Gregory, F.R.S., chairman.

for the improvement of the language of scientific literature are therefore direct contributions to scientific method; and as the societies represented at this conference are the strongest link between the technical specialist and those who take a friendly interest in science, special sympathy may be expected here with the complaints against the unintelligibility of some scientific writings owing to the excessive use of technical terms. I wish this afternoon, without denying that technical terms are sometimes used unnecessarily, to direct attention to a more neglected and insidious evil—the use of well-known English words with a technical meaning. The temptation to adopt an old word for a new idea, instead of inventing a fresh term, is often strong. It saves trouble—at the time. The old word is probably shorter than a new one would have to be, and its use avoids burdening a passage with an unknown and perhaps uncouth term. A sentence in which all the words are familiar appears to present no difficulties; a reader skims lightly over it pleased with the lucidity of the author and ignorant of the fact that it has been misunderstood, as the leading word conveyed to him a meaning different from that intended by the writer. The danger of a passage being misunderstood is more serious than that of its being not understood. It is worse to be misled by a plausible phrase than to be startled or repelled by a correct technical statement. A new word compels a conscientious reader to determine its true meaning, and should help him to a clear conception of the fresh idea; whereas the use of an old word with a new meaning discourages inquiry and encourages slovenliness in work and thought. The use of popular phraseology may render scientific literature apparently less strange; but if that phraseology be incorrectly used, the ultimate effect is to increase the divergence between the scientific and popular languages, and the estrangement between science and public opinion. For the scientific use of terms inconsistently with their ordinary meanings is apt to persuade the layman that the language of science is so different from his own that it is no use attempting to understand it.

Most sciences have adopted popular terms with new and restricted meanings; and if the origin of such a word be forgotten, scientific writers are apt to treat any use of it in its original sense as a popular blunder. For example, zoologists not only now reject spiders from the class of Insecta, but treat the idea that a spider is an insect as a mistake due to simple ignorance. Thus, to quote a recent standard work, J. H. and A. B. Comstock, in their "Manual for the Study of Insects" (1909, p. 12), remark that spiders "are often mistaken for insects," although the authors have abandoned "Insecta" as the name of the class in favour of Hexapoda. The word insect is much older than modern systematic zoology and the class Insecta. The word insect is derived from the Latin *insectum*, which is based on the verb *insecare*, "to cut into"; and it was used for animals the bodies of which are notched or incised into sections. This meaning of the word is well expressed in the definition by Philemon Holland, who is the earliest English author quoted in the "New English Dictionary" as having used the word insect. In his book, "The Historie of the World, commonly called the Naturall Historie of C. Plinius Secundus" (1601), he says, "Well may they all be called Insecta, by reason of those cuts and divisions, which some have about the necke, and others in the breast and belly; the which do go round and part the members of the bodie, hanging together only by a little pipe and fistulous conveyance."

The class Insecta was based by its founder, Linnaeus, on the segmentation of the body, and not on the number of legs; it therefore included scorpions, millipedes, and spiders. It was not until half a century later that Lamarck excluded spiders from the class Insecta; and as late as 1864 we find so distinguished a naturalist as Bates<sup>1</sup> remarking that the spiders "Mygales are quite common insects." Even such a recent standard modern cyclopædia as the "Jewish Encyclopædia"<sup>2</sup> retains the millipedes as insects. The term insect should not, however, be applied to a coral polyp; "coral insect" is justly denounced as a misleading blunder, due to ignorance of the nature of the coral animal. The terms *insectum* and insect according to their original usage no doubt included worms, and

Holland expressly mentioned earth-worms as insects. In many worms, however, the body is not divided into segments, and worms were therefore early and appropriately excluded from insects; so Milton writes<sup>3</sup> in his description of the bower in Eden:—

"Other creature here,  
Beast, bird, insect, or worm, durst enter none."

Johnson's Dictionary (first edition, 1755) accepted a definition restricting insects to animals whose body is nearly divided in the middle into two parts. "Insects may be considered together as one great tribe of animals; they are called insects from a separation in the middle of their bodies whereby they are cut into two parts, which are joined together by a small ligature, as we see in wasps and common flies." This definition, while admitting spiders, excluded worms. The present zoological separation of insects from other air-breathing arthropods is based mainly on the presence of six legs. The term Hexapoda is therefore more suitable for the class as now defined than Insecta; and the restriction of Insecta in systematic zoology to a group based not on the insecting of the body, but on the number of legs, is less accurate and appropriate than its previous use in zoology and in popular English. It would seem better to admit that the spider is an insect, but insist that it is not a hexapod.

The term worm, on the other hand, illustrates cases in which a restriction of popular meaning is both appropriate and convenient. A worm was originally not necessarily one of the Vermes of the zoologist. Thus the worms mentioned in the Old Testament included various insect larvæ. Dr. Ridewood tells me that the manna collected by the Israelites in the desert was probably a small lichen, and that the worms bred in it<sup>4</sup> were probably fly grubs; and the references by Job and Isaiah to worms that cover the dead may include both insect grubs and nematodes. When Job reminds the sinner of the worm that "shall feed sweetly upon him,"<sup>5</sup> he had in mind the larvæ of blow-flies; and though the worms that ate Herod<sup>6</sup> may have been an endoparasitic worm or fluke, the worm that caused the withering of Jonah's gourd<sup>7</sup> was probably a beetle larva.

In popular English, moreover, worms always included snakes, as shown both by Dr. Johnson's definition of a worm, "A small, harmless serpent that lives in the earth," and by Shakespeare in Cleopatra's inquiry:—

"Hast thou the pretty worm of Nilus there,  
That kills and pains not?"<sup>8</sup>

Uniformity between popular and zoological terminology can best be secured in regard to the term worm by inducing the public to use it only for one of the Vermes, for it is less necessary to have one term for all creeping things than to distinguish noxious snakes and centipedes from the lowly and useful worm.

The word fish illustrates how a popular word may become unduly extended and then be again restricted with fuller knowledge. The word is of very ancient origin, and was probably originally limited to what the zoologist accepts as fish. The term fish is not derived from the primitive Aryan language, and it was not introduced until the Latin-Teutonic section had separated from the Indian and the Greek; and as the term was invented by people who apparently had no knowledge of the sea, they doubtless used it for fresh-water fish.<sup>9</sup> The primitive hunters who went to the coast may have extended it to shellfish, and it was adopted in the English crayfish by a corruption of the French *écrevisse*. When whales and dolphins were discovered, they were accepted as fish in ignorance of their affinities, for such aquatic animals as seals and otters were never included among fish, since their mammalian characters were obvious. That whales, porpoises, and their allies are not fish is now admitted in current language, though the old usage survives among whalers. The terms whale-fishery and seal-fishery are firmly established; but they are unobjectionable, because those industries have so many important features in common with the capture of fish. The general current limitation of fish to the fish

<sup>1</sup> "A Naturalist on the Amazon," p. 96.

<sup>2</sup> 1906, vol. vi., p. 105.

<sup>3</sup> "Paradise Lost," iv.

<sup>4</sup> Exodus, xv. 20.

<sup>5</sup> Job, xxiv. 20.

<sup>6</sup> Acts, xii. 23.

<sup>7</sup> Jonah, iv. 7.

<sup>8</sup> "Antony and Cleopatra," v. 2.

<sup>9</sup> See O. Schrader, "Prehistoric Antiquities of the Aryan Peoples," 1890, pp. 117-118, 127-128, 353-354.



of the zoologist is only a return to the primary meaning of the word.

Chemistry supplies an excellent illustration of the justifiable adoption of an old term with a revised meaning. Element is used in its later classical meaning, and Chaucer in 1386 shows that it was used in Early English in a similar sense. He says in the *Frere's Tale* (line 206):—

"Make ye yow newe bodies alway  
Of elementz."

Its modern chemical use means the resurrection of the word element to a new period of usefulness.

The chemical adoption of the terms metal and non-metal for the two classes of elements is, on the other hand, an example of the inconvenience that results when a new definition is only approximately coincident with a well-established current meaning. The word metal appears to be derived from the Greek *μέταλλον*, connected with *μεταλλάω*, "to seek after," through the Latin *metallum*, a mine or quarry, or substance obtained by mining. Hence road metal for stone is correct.

By the time of Johnson the word metal was usually restricted to those products from mines which have metallic as distinct from earthy or stony properties. Johnson's definition—"We understand by the term metal a firm, heavy, and hard substance, opaque, fusible by fire, and concreting again when cold into a solid body such as it was before, which is malleable under the hammer, and is of a bright, glossy, and glittering substance where newly cut or broken"—states the general idea of a metal.

The chemical adoption of the word for the larger of the two classes of elements has resulted in the use of the word metal in science with two contradictory senses; thus in elementary geology the word is used with its chemical meaning; but in economic geology metal is used in its commercial sense.

Sodium and potassium are therefore metals in elementary geology and academic mineralogy; but they are not metals in advanced economic geology. This double use of the word is an occasional source of confusion and discounts any good advice that may be given to students as to precision in the use of terms. It is perhaps too late to change, but it would have been better if the chemists had adopted technical terms for the two groups of elements instead of applying the term metal to a material so unlike the ordinary idea of a metal as is sodium.

Geology has been a particularly flagrant sinner in the misuse of popular terms. Its nomenclature has not only unconsciously absorbed and modified many English words, but committees of experts have deliberately committed such wholesale piracy that our language has been left bankrupt in some departments. Thus terms are needed in stratigraphy for the various subdivisions of the sedimentary rocks and for the lengths of time occupied in their deposition. The International Geological Congress proposed the following series of terms, beginning with the larger divisions:—

| Formation | Equivalent Time |
|-----------|-----------------|
| Group.    | Era.            |
| System.   | Period.         |
| Series.   | Epoch.          |
| Stage.    | Age.            |

Although a systematic nomenclature would be very useful, this scheme has not been generally adopted; and I think the reason is that, by assigning definite meanings to all the indefinite terms available, there is nothing left for use in an indefinite sense. Thus a number of beds, which together may be either more or less than a subdivision of a system, cannot be called a series without risk of misunderstanding. All the above eight terms are required for use in geology with their current English meanings. The scheme proposed by the International Geological Congress involves using these words sometimes in a technical and sometimes in a non-technical sense. In literature the difficulty may be overcome by printing the words with capital letters when they are used as the names of definite divisions; but that is impossible in speech. The principle recommended by the International Geological Congress was excellent, but the scheme proposed has proved impracticable owing to its application of old words to new things.

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Buckman adopted a sounder policy when he introduced the term *Hemera* for the time equivalent to a zone.

Geologists have adopted some common words with meanings which render geological phraseology unintelligible or even ludicrous to the man who has not been warned that they require special interpretation. Thus the need in elementary teaching for emphasising the difference between mineral species and mineral aggregates has led to the frequent use of the term mineral as an abbreviation for mineral species. Some authors have been led by this practice to deny that mineral aggregates are minerals, and therefore assert that coal, most iron ores, oil shale, mineral oil, &c., are not minerals. According to that view the mineral industry has little concern with minerals; and the mineral resources of the British Isles, which are generally regarded as extensive, are reduced according to this nomenclature to practically nothing.

Another triumph of dauntless logic is the use of the word rock. It is no doubt convenient, when speaking of the crust of the earth, to have one term to cover all its materials; and rock is used in this way just as the dust in the atmosphere and the salts in the sea may be included with the air and the water. Hence has arisen the geological convention of calling any large constituent of the earth's crust a rock, quite regardless of the cohesion of its particles. G. H. Kinahan, for example, in his "A Handy Book of Rock Names" (1873), says, "Thus loose sand, clay, peat, and even vegetable mould, geologically speaking, are rocks" (p. 1); and on p. 131 he includes ice among rocks.

Now this use of the term ignores the very essence of the popular idea of a rock. The term appears to be derived from the same word as crag, and the essential quality of a rock is firmness. The parable of the man who built his house upon a rock would need to be retranslated, and Shakespeare's "He's the rock, the oak not to be wind-shaken,"<sup>1</sup> loses its meaning if rock may be loose, drifting sand. The conventional use of the word rock in geology has been so widely adopted that objection to it may appear pedantic. Rosenbusch,<sup>2</sup> however, has defined "Rocks as the geologically independent constituents, of more or less constant chemical and mineralogical composition, of which the firm ('feste') crust of our earth is built." Hence such definitions as that in my "Structural Geography" (p. 21) of rocks as the firm coherent masses which form the main part of the lithosphere may shelter behind the high authority of Rosenbusch.

Reference to the paradox of calling clay and sand rocks reminds me that the word clay is now used in two very different senses in two sections of geology. In mineralogy the clays are a group of mineral species which are hydrous silicates of alumina. To the merchant, the farmer, and the economic geologist the essential quality of clay depends on texture and not on chemical composition. The word clay appears to be based on the same root as clog and cleave, while the Russian *glin* and the Greek *γλί* connect it with glue and glutin. The root of the word clearly refers to the adhesiveness which clay owes to its plasticity.

The essential property of clay is that it becomes plastic when wet. In England this property is chiefly found in material, which, being formed from decomposed felspars, is a hydrous silicate of alumina; but other common materials have the same property, if ground to the requisite fineness. Quartz flour is a common clay-forming material in many parts of the world, and much of the material called clay by the farmer is pure silica. Hence the definition of economic and agricultural geologists that clay is earthy material, which is plastic when wet, its particles being no more than 0.05 mm. in diameter, is a more common-sense definition than any based on chemical composition.<sup>3</sup>

If a name be wanted to distinguish clays which are silicate of alumina from clays of different composition,

<sup>1</sup> Coriolanus, v. 2, 117. Cf. also Zangwill—"Feeling solid-based upon eternal rock."

<sup>2</sup> H. Rosenbusch, "Elemente der Gesteinslehre," Stuttgart, 1910, third edition, p. 1.

<sup>3</sup> Ries's definition—"Clay is the term applied to those earthy materials occurring in nature whose most prominent property is that of plasticity when wet" (H. Ries, "Clays, Their Occurrence, Properties, and Uses, with especial reference to those of the United States," 1906, p. 1)—is an example of those based on texture and not on composition.

then a new name should be invented, instead of adopting a definition which refuses to accept as clay the slime of the quartz miner, much of the Scottish boulder clay, and any one of the nine brick-clays in the table of brick-clay analyses given by Ries.<sup>1</sup>

I have referred to a few instances to illustrate the frequent misappropriation of current terms by various branches of science, in the hope that the members of the corresponding societies will use their influence to discourage this practice. It should be remembered, however, that there are many cases in which it is a wise policy to transform a current popular term. It may be even justifiable, as in the case of minium and cinnabar, to use a word with the very opposite of its original meaning. A term may be adopted and redefined where, as in the cases of fish and worm, the popular meaning involves a wrong idea, which it is advisable to correct, or overlooks a distinction which is practically important. Change and growth in nomenclature must be allowed. A dead language is very good for fixed ideas; but rigid adherence to original meanings is a bondage from which it is to be hoped scientific terminology will be always free. It is useless to suggest rules as to when popular terms may be revised; each case should be judged on its merits.

The casual adoption of current words with new meanings is often an attempt to secure specious simplicity at the price of subsequent confusion. Deissmann's recent book, "Light from the Ancient East" (1910), directs attention to the misconceptions that have similarly arisen in theology, for he urges that words used in the New Testament are now understood, in what the authors of that volume would decidedly call a non-natural sense. The idea that science is being driven into an intellectual wilderness owing to its technical terminology is an idle bogie. Reference to the sporting or business columns of any daily paper will show that all specialised pursuits have their own special language. The language of golf is as technical as that of geology, and I venture to urge that science will lose more by the misuse of current English than by the invention of new terms for new ideas and new materials. A rose by any other name may smell as sweet, but we cannot get sweet-smelling roses if we order them under the name of dandelions. In short, to put new meanings into standard English words appears as unjustifiable as to put home-brewed beer into Bass-labelled bottles.

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The next combined examination for sixty-eight entrance scholarships and a large number of exhibitions, at Pembroke, Gonville and Caius, King's, Jesus, Christ's, St. John's, and Emmanuel Colleges, will be held on Tuesday, December 5, and following days. Mathematics, classics, and natural sciences will be the subjects of examination at all the above-mentioned colleges. Most of the colleges allow candidates who intend to study mechanical sciences to compete for scholarships and exhibitions by taking the papers set in mathematics or natural sciences. A candidate for a scholarship or exhibition at any of the seven colleges must not be more than nineteen years of age on October 1, 1911. Forms of application for admission to the examination at the respective colleges may be obtained as follows:—Pembroke College, W. S. Hadley; Gonville and Caius College, The Master; King's College, W. H. Macaulay; Jesus College, A. Gray; Christ's College, The Master; St. John's College, The Master; Emmanuel College, The Master; from any of whom further information respecting the scholarships and other matters connected with the several colleges may be obtained. The forms of application must be sent in on or before Saturday, November 25.

The syndicate appointed to consider the question of providing pensions for professors and others in the service of the University has considered the desirability of framing a contributory scheme. The stipends, however, which the University is at present able to pay do not seem to the syndicate sufficiently large to justify a tax for providing pensions. The syndicate has also considered whether the University

should enter into an arrangement with an assurance company or should form its own pension fund; but it recommends that the University should establish its own pension fund. In its scheme the syndicate has aimed at providing pensions for professors (with certain exceptions), readers, and certain officers on the basis of compulsory retirement at a given age; the maximum pension to be 500*l.* a year or five-sixths of the stipend, whichever is the less; and the actual pension to be in a proportion, varying with the length of service, to the maximum pension. The amount of pension is further limited to 500*l.* a year, inclusive of any college pension, stipend, or emolument. The syndicate proposes that in the first instance the pension scheme should apply only to professors, readers, and officers appointed in the future, in which case the annual contribution for pensions would for many years probably be small. But it is hoped that the University may be able in due course to provide pensions for some of the present staff if they are willing to place themselves under the scheme. There are nineteen professors, twelve readers, and nine university officers of the present staff who would be under the age of sixty on January 1, 1911, and entitled to pensions according to the scheme.

The syndicate appointed to consider the financial administration of the various scientific departments of the University, and the financial relations between these departments and the museums and lecture-rooms syndicate, has issued a revised report, in which the following rules are formulated, among others:—(1) That the responsibility for the working and superintendence of each of the scientific departments and for the administration of the departmental fund rest with the professor who is the head of the department. (2) That, subject to any subsisting agreement for the retention of fees by individuals, all fees received for lectures and practical courses be paid into the departmental fund. (3) That a university buildings syndicate be established in substitution for the museums and lecture-rooms syndicate, and that all university buildings be placed under its charge except the University Press and any other buildings specially committed by the Senate to any special board or syndicate. (4) That a general maintenance fund for university buildings be established in substitution for the museums and lecture-rooms maintenance fund, and that it be referred to the financial board to advise the Senate what annual payment should be made to this fund.

The financial board has reported on the college contributions for 1911. In its opinion the sum of 30,071*l.* should be raised in the present year by contributions from the colleges for university purposes. This report has been accepted by the Senate.

It is proposed to establish a post of demonstrator in medical etymology in connection with the Quick Laboratory. The appointment will be made by the Quick professor of biology with the consent of the Vice-Chancellor, and the office will terminate with the current period of the tenure of the Quick professorship.

THE governing body of the Lister Institute has made the following appointments:—Drs. E. E. Atkin and W. Ray to be assistant bacteriologists, Mr. A. W. Bacot to be entomologist, and Dr. Casimir Funk to be a research scholar.

AN international exhibition is being arranged by the Imperial Russian Technical Society to illustrate the organisation and equipment of schools. The exhibition is to be opened on April 15, 1912, and will last until the following July 15. This will be the first exhibition of its kind to be held in Russia. Full particulars and the conditions for exhibitors can be obtained from the executive committee of the International Exhibition "Organisation and Equipment of Schools," St. Petersburg, Panteleimonskaia, 2.

REUTER'S correspondent at Simla states that about 30 lakhs of rupees (200,000*l.*) have been collected for establishing a residential Hindu university at Benares with an adequate European staff. Mr. Butler, of the Viceroy's Council, in writing to the Maharaja of Darbhanga, indicated the conditions upon which the Government would recognise the university, and these conditions have been

<sup>1</sup> H. Ries, *ibid.*, p. 185.